



**Environmental
Operations, Inc.**
CLEARING THE WAY

February 9, 2017

Mr. Bruce Morrison
Project Manager
U.S. Environmental Protection Agency, Region 7
11201 Renner Boulevard
Lenexa, KS 66219

RE: Vapor Intrusion – Sub Slab Sampling Revised Report
Solutia – John F. Queeny Plant
St. Louis, Missouri
EPA ID No. MOD 004 954 111

Dear Mr. Morrison:

EOI is providing this revised report on behalf of SWH Investments II, to address obligations under an Administrative Order on Consent (EPA Docket No: RCRA-07-2009-0015), and to prepare the property for redevelopment for industrial/commercial use. The July 5, 2016 Groundwater and Vapor Intrusion Work Plan was approved by the United States Environmental Protection Agency (EPA) via their letter dated July 19, 2016. This revised letter report covers the first phase of work conducted for the vapor intrusion component of the plan, and comments received from EPA in their letter dated January 10, 2017.

Background and Purpose

Prior to implementing the approved plan, EPA sent an email on August 19, 2016, which had comments pertaining to work not specified in the plan. A conversation with EPA and the Missouri Department of Natural Resources (MDNR) was held on August 22, 2016, and the agreed-upon work plan changes were memorialized in an email to EPA and MDNR on August 23, 2016. Specifically, the soil gas portion of the plan was deleted. In addition, the sub-slab vapor testing was augmented from one point per building to two points per building. This initial phase of an iterative process concerning vapor intrusion generated data to evaluate potential existing concerns for vapor generation from the groundwater impacts in downgradient locations to the north of the site. This report describes the field work and test results. The report also provides recommendations for the next phase of work.

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Approach

The vapor intrusion evaluation at the Solutia site is being conducted in phases. The first phase involved evaluating the most recent groundwater data (May 2015) to determine if volatiles present in the closest upgradient groundwater are potentially a threat via the vapor intrusion pathway. To make this determination, the USEPA's Vapor Intrusion Screening Level (VISL) Calculator (USEPA, Nov. 2015) was used to screen for constituents of potential concern (COPCs). Screening was performed by comparing the maximum detected chemical concentration of volatile organic chemicals (VOCs) to levels established in the VISL calculator, for the industrial scenario at the 1E-05 cancer risk target level. Chemicals exceeding their respective screening level are considered to be COPCs and are evaluated further. Note that there are no values in the guidance for cis or trans 1,2-dichloroethene.

The COPCs include the following as approved by EPA: 1,1,1-trichloroethane, 1,2-dichloroethane, acetone, benzene, chlorobenzene, chloroform, cis-1,2-dichloroethene, ethylbenzene, methylene chloride, tetrachloroethene (PCE), toluene, trichloroethene (TCE), trans-1,2-dichloroethene, vinyl chloride, and xylenes. Due to the proximity of the diesel storage tank used by the school bus company and located immediately upgradient to the bus maintenance facility, naphthalene was added as a COPC at that location to evaluate potential presence of diesel fuel versus detections associated with the historic impacts.

The general Solutia site location is depicted in Figure 1. Figure 2 shows the two buildings identified and described in the work plan for collecting the sub-slab samples. The figure also shows the approximate location of the samples and their designation. These buildings are on property owned by Ahrens Contracting, Inc. (Ahrens). Mr. Ted Ahrens, Jr. was contacted to facilitate access. To minimize any disruptions to regular work activities at the planned locations, at the request of Mr. Ahrens, we agreed to conduct the sub-slab vapor collection on Saturday, September 24, 2016.

Field Work

Collection of sub-slab vapor samples was conducted on September 24, 2016. Ms. Christine Kump-Mitchell with MDNR was on-site observing and available for questions or input. Mr. Ahrens and an Ahrens employee, Charlie Evans, provided access to the buildings. The first samples were obtained from the Ahrens office building. Ms. Kump Mitchell agreed that one sample from each end of the east-west trending hallway was best. No known sub-grade utilities were present. The flooring, observed to be in good condition, consisted of 12-inch tile over concrete.

Probe and Vapor Pin™ Installation

The first sample location, SSV-1, was collected at the western end of the hallway. A rotary hammer was used to create the requisite hole for placement of sample equipment, a Vapor Pin™. The hole diameter in the floor slab for the pin was approximately 1.5-inches. A 5/8-inch hole

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was drilled through the slab and a least 1-inch below the slab to create a void. At this location, the floor slab was greater than 10-inches thick. After removal of the bit, the floor surface was cleaned, removing loose cuttings with a vacuum.

The Vapor Pin™ was installed in accordance with the manufacturer's instructions. Care was taken to ensure that a tight seal was made, and the protective cap on the Vapor Pin™ was in place to prevent vapor loss prior to sampling. The sub-slab sample point was flush mounted. Although the Teflon sleeve on the pin should create an adequate seal, a secondary check was performed, utilizing a water dam. Leak testing (shut-in for sampling train) was conducted to ensure a representative sample was collected from the sub-slab vapor probe location.

Collection of SSV-2 was at the eastern end of the hallway. The first three attempts to penetrate the concrete slab were each terminated after drilling nearly three feet into concrete. Upon concurrence with MDNR, the location was moved further east into a room beyond the hallway. The concrete was about 10-inches thick, as seen in the west end of the building, and a sample was collected at this location.

Sample SSV-3 was obtained from the bus maintenance building. The specific location was at the southwest corner of the break room. Sample SSV-4 was also obtained from the bus maintenance building, collected from the northeast end of the break room. The concrete slab for these two locations was about 6.75-inches thick.

Sample Collection

At each sample location, the Vapor Pin™ was checked to determine that the pin was not blocked with material that could interfere with air flow. A lab-certified, pre-evacuated, clean 1.0-L Summa® canister was attached to the pin via Teflon tubing. The valve on Summa® canister was then opened. The sub-slab vapor sample was drawn into the canister by pressure equilibration. The sampling time varied by location.

Once this sample, designated SSV-1, was collected, the Summa® valve was closed, and the Teflon tubing was removed. The vapor pin was then removed from the hole. Using Ace® brand, quick-curing, hydraulic cement mixed according to manufacturer's directions, the penetration was sealed. A metal rod was used to tamp the cement mixture so that cement was placed from the base of the hole to the surface. This approach was used on each of the samples/sample locations.

During sampling at sub-slab location SSV-3, it was observed that the flow control valve portion of the sampling apparatus was bent, preventing air flow into the canister. The sampling apparatus was disassembled to remove the bent section and reassembled without the flow control valve or pressure gauge. The lab confirmed sufficient sample was received.

Sample number, sample location, and date collected was recorded on the chain of custody form and on the blank tag attached to the canister. The sample was submitted for analysis using EPA

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Method TO-15 for those COPCs previously described. This general approach was followed for each of the samples collected. The samples were taken to TekLab for analyses.

Analytical Testing

In accordance with the approved work plan, the samples were analyzed for the COPCs by EPA Method TO-15. The results are attached to this report. Detected COPCs in SSV-1 included 1,1,1-trichloroethane, acetone, chloroform, cis-1,2-dichloroethene, PCE, TCE, and trans-1,2-dichloroethene. Detected COPCs in SSV-2 included 1,1,1-trichloroethane, cis-1,2-dichloroethene, PCE, and TCE. Detected COPCs in SSV-3 included acetone, 1,1,1-trichloroethane, PCE, and toluene. Detected COPCs in SSV-4 included acetone, benzene, ethylbenzene, PCE, and toluene. Results are presented in Tables 1 through 4.

Quality Assurance – Data Validation

Sample Collection and Sample Receipt

Samples were and shipped to Teklab, Inc. on September 24, 2016, as noted in the chain-of-custody (COC) form provided to the laboratory with sample submittal. The applicable data package from Teklab is designated 16091675.

The chain-of-custody was maintained and the canisters were received by Teklab at their analytical facility in good condition. Samples were transferred to the North Bluff Road facility in Collinsville, IL, for analysis.

Upon arrival at the laboratory, pressure readings on the sample canisters were obtained and then compared to the readings taken in the field following sample collection. Each of the comparisons demonstrated less than 5 inches Hg loss from field to lab, with the exception of sample SSV-3. There was an equipment malfunction regarding the canister's in-line gauge as noted previously. Although it was not possible to obtain the final field pressure reading for SSV-3, the sample collection is considered to have been complete, similar to the other three samples collected, as confirmed by the laboratory sample receipt form. Because of this, and the fact that the other three sample canisters did not show a loss of pressure greater than 5 inches Hg from field to lab, all samples are deemed to have arrived at the laboratory in an acceptable manner.

Analytical Methods

Air samples were analyzed by method TO15, providing results for the following VOC analytes by Gas Chromatograph/Mass Spectrometry (GC/MS):

1. 1,1,1-trichloroethane
2. 1,2-dichloroethane
3. acetone
4. benzene
5. chlorobenzene

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6. chloroform
7. cis-1,2-dichloroethene
8. ethylbenzene
9. methylene chloride
10. naphthalene
11. tetrachloroethene
12. toluene
13. trans-1,2-dichloroethene
14. trichloroethene
15. vinyl chloride
16. xylenes, total

Analytical Reporting Limits

Reporting limits for all data packages were within project requirements. However, due to high concentrations of some target analytes and/or matrix interference, analyses of some analytes required dilutions, as follows.

All VOCs analyzed in sample SSV-1 required a dilution to a factor of 200, except for tetrachloroethene and trichloroethene, which required dilutions to a factor of 1000.

All VOCs analyzed in sample SSV-2 required a dilution to a factor of 200, except for trichloroethene, which required a dilution to a factor of 1000.

All VOCs analyzed in samples SSV-3 and SSV-4 required a dilution to a factor of 2, except for acetone, which required a dilution to a factor of 20.

Laboratory Data Packages

The laboratory analytical data packages were complete, including the Quality Control information. A COC was included with each laboratory data package, double-signed and dated.

Sample Preservation

Sample preservation is not applicable for air samples.

Holding Times

All samples were analyzed by the laboratory within the specified holding. Samples were collected on September 24, 2016 and analyzed on September 28.

Blanks

Two method blank samples were analyzed for this batch of VOCs. Neither resulted in any detections above the method reporting limit.

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Laboratory Control Sample

Two laboratory control samples (LCSs) with corresponding laboratory control sample duplicates (LCSDs) were analyzed for this batch. The percent recoveries of compounds spiked/analyzed were all within the percent quality control range limits and the relative percent difference (RPDs) for the duplicates were within the quality control criteria range.

Surrogate Recoveries

Surrogate recoveries for each of the four air samples were within the acceptable criteria range.

On the basis of the data validation described above, all sample data are deemed to be of sufficient quality.

Data Evaluation

As described in the work plan, for consistency in screening and evaluating data for an industrial risk scenario, if the sum of the carcinogenic risks exceeds $1\text{E-}05$, or if the VI hazards sum exceeds 1.0, the next phase, an indoor air study, will be triggered.

USEPA's VISL Calculator (USEPA, May 2016) was used to calculate risk for chemicals analyzed in each gas sample. Detected chemical concentrations were input into the Sub-slab or Exterior Gas Concentration to Indoor Air Concentration (SGC-IAC) model of the VISL. As a conservative measure, the method detection limit (MDL) concentrations of chemicals which were not detected were also input into the VISL SGC-IAC. As indicated above, there are no values in the VISL calculator for cis or trans 1,2-dichloroethene.

Tables 1 through 4 show the COPC concentrations and their respective cancer risk results and noncancer hazard indices (HIs; with the HI being a sum of the individual chemical's hazard quotients [HQs]). Only samples SSV-1 and SSV-2 demonstrated a cumulative cancer risk greater than $1\text{E-}05$ as well as an exceedance of the noncancer HI criteria of 1.0. The chemicals which demonstrated the major contribution to the cumulative risks in sample SSV-1 are: Chloroform, PCE, and TCE. Each of the risk results for those chemicals demonstrated either a cancer risk greater than $1\text{E-}05$ and/or an HQ greater than 1.0. For sample SSV-2, the following constituents exceeded at least one of those criteria: PCE, and TCE.

Based upon the data for SSV-3 and SSV-4, criteria were not exceeded, either individually or cumulatively. Supporting documentation of the calculations and evaluation are attached to this report.

Conclusions and Recommendations

Based upon the work conducted and evaluation of the data, as no criteria were exceeded for samples obtained from the bus maintenance building, no additional work is needed per the VI Work Plan for that structure.

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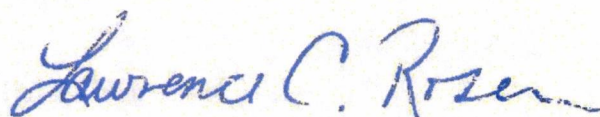
Based upon evaluation of the data obtained from the Ahrens office building, as criteria were exceeded, additional work is needed per the VI Work Plan. The next phase of work will be collection of indoor air samples. This task will be conducted per the Work Plan, with field work coordinated with the building owner. This first event will be conducted between December 15, 2016, and February 15, 2017, with two samples obtained from the building, per the approved work plan.

As described in the Work Plan, prior to sampling, a detailed survey of the building will be performed. The pre-sampling inspection will identify conditions that may affect or interfere with the proposed testing. The inspection will include the type of structure, floor layout, physical conditions, and airflows. A product inventory will help identify potential sources of interference.

Owners/occupants will also be requested to assist in filling out a pre-sampling questionnaire. The questionnaire and inventory survey will enable the sampling investigator to document various information on building construction, the occupants, and potential sources of indoor air contamination. A photo-ionization detector (PID) may also be used as a screening tool to identify potential sources for interference.

If there are questions or concerns related to this report, please contact Larry Rosen, who can be reached by phone at (314) 480-4694, or via email at larryr@environmentalops.com.

Respectfully submitted,
ENVIRONMENTAL OPERATIONS, INC.



Lawrence C. Rosen, R.G.
Senior Project Manager

Copy: Mr. Michael House/Solutia
Ms. Christine Kump-Mitchell/MDNR
Mr. Rich Nussbaum/ MDNR

Attachments: Figure 1 – General Site Plan
Figure 2 – Sample Locations
Tables 1 through 4 – Summary Data with Risk Criteria
VISL Calculation Supporting Documentation
Analytical Laboratory Report 16091675
Field notes

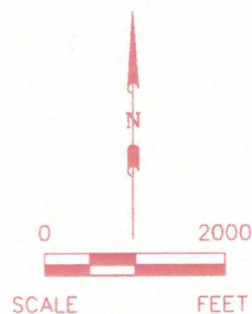
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FIGURES

**LEGEND**

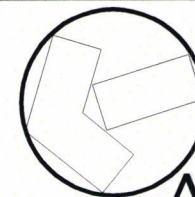
- GENERAL LOCATION OF
J.F. QUEENY PLANT

BASE MAP REFERENCE: MAP TAKEN FROM ELECTRONIC
USGS DIGITAL RASTER GRAPHIC 7.5 MINUTE SERIES
TOPOGRAPHIC MAP OF CAHOKIA, ILLINOIS, REVISED 1952.

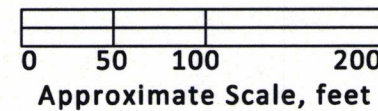


Site Location Map
Former Solutia Queeny Plant
Saint Louis Missouri

Figure 1



North



Legend

- Sub-Slab Vapor Sample



**Sub-Slab Vapor
Sample Locations**
Former Solutia Queeny Plant
Saint Louis, Missouri

Figure 2

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TABLES

Table 1 SSV-1

Date Collected

9/24/2016 9:26:00 AM

Sample

SSV-1 (Nondetects at the Method Detection Level)

Commercial¹
VISL Results

Analyte	Unit	Result	Unit	Result	Unit	Result	Qual	CR	HQ
Acetone	ppbv	630	mg/M3	1.4965	ug/m3	1496.5		No IUR	3.30E-04
Benzene	ppbv	< 10	mg/M3	< 0.0319	ug/m3	< 31.9		6.10E-07	7.30E-03
Chlorobenzene	ppbv	< 10	mg/M3	< 0.046	ug/m3	< 46		No IUR	6.30E-03
Chloroform	ppbv	216	mg/M3	1.0546	ug/m3	1054.6		5.90E-05	7.40E-02
1,2-Dichloroethane	ppbv	< 10	mg/M3	< 0.0405	ug/m3	< 40.5		2.60E-06	4.00E-02
Ethylbenzene	ppbv	< 10	mg/M3	< 0.0434	ug/m3	< 43.4		2.70E-07	3.00E-04
Methylene chloride	ppbv	< 10	mg/M3	< 0.0347	ug/m3	< 34.7		8.50E-10	4.00E-04
Naphthalene	ppbv	< 20	mg/M3	< 0.1048	ug/m3	< 104.8		8.70E-06	2.40E-01
Tetrachloroethene	ppbv	8240	mg/M3	55.8882	ug/m3	55888		3.60E-05	9.60E+00
Toluene	ppbv	< 50	mg/M3	< 0.0377	ug/m3	< 37.7		No IUR	5.20E-05
1,1,1-Trichloroethane	ppbv	276	mg/M3	1.5059	ug/m3	1505.9		No IUR	2.10E-03
Trichloroethene	ppbv	10600	mg/M3	56.9618	ug/m3	56962		5.70E-04	2.00E+02
Vinyl chloride	ppbv	< 10	mg/M3	< 0.0256	ug/m3	< 25.6		2.80E-07	1.80E-03
Xylenes, Total	ppbv	< 30	mg/M3	< 0.1303	ug/m3	< 130.3		No IUR	8.90E-03
cis-1,2-Dichloroethene	ppbv	172	mg/M3	0.682	ug/m3	682		No IUR	No RfC
trans-1,2-Dichloroethene	ppbv	108	mg/M3	0.4282	ug/m3	428.2		No IUR	No RfC

ppbv = parts per billion by volume

VISL = vapor intrusion screening level

¹Results obtained using EPA's Vapor Intrusion Screening Level
Calculator, May 2016 Regional Screening Levels (RSLs)

Carcinogenic Risk Sum = 6.8E-04

Noncancer Hazard Index = 2.1E+02

 = risk results exceed criteria

Table 2 SSV-2

Date Collected

9/24/2016 9:43:00 AM

Sample

SSV-2 (Nondetects at the Method Detection Level)

Commercial¹
VISL Results

Analyte	Unit	Result	Unit	Result	Unit	Result	Qual	CR	HQ
Acetone	ppbv	< 40	mg/M3	< 0.095	ug/m3	< 95		No IUR	2.10E-05
Benzene	ppbv	< 10	mg/M3	< 0.0319	ug/m3	< 31.9		6.10E-07	7.30E-03
Chlorobenzene	ppbv	< 10	mg/M3	< 0.046	ug/m3	< 46		No IUR	6.30E-03
Chloroform	ppbv	< 20	mg/M3	< 0.0977	ug/m3	< 97.7		5.50E-06	6.80E-03
1,2-Dichloroethane	ppbv	< 10	mg/M3	< 0.0396	ug/m3	< 39.6		2.50E-06	3.90E-02
Ethylbenzene	ppbv	< 10	mg/M3	< 0.0434	ug/m3	< 43.4		2.70E-07	3.00E-04
Methylene chloride	ppbv	< 10	mg/M3	< 0.0347	ug/m3	< 34.7		8.50E-10	4.00E-04
Naphthalene	ppbv	< 20	mg/M3	< 0.1048	ug/m3	< 104.8		8.70E-06	2.40E-01
Tetrachloroethene	ppbv	7220	mg/M3	48.97	ug/m3	48970		3.10E-05	8.40E+00
Toluene	ppbv	< 10	mg/M3	< 0.0377	ug/m3	< 37.7		No IUR	5.20E-05
1,1,1-Trichloroethane	ppbv	410	mg/M3	2.237	ug/m3	2237		No IUR	3.10E-03
Trichloroethene	ppbv	518	mg/M3	2.7836	ug/m3	2783.6		2.80E-05	9.50E+00
Vinyl chloride	ppbv	< 10	mg/M3	< 0.0256	ug/m3	< 25.6		2.80E-07	1.80E-03
Xylenes, Total	ppbv	< 30	mg/M3	< 0.1303	ug/m3	< 130.3		No IUR	8.90E-03
cis-1,2-Dichloroethene	ppbv	226	mg/M3	0.8961	ug/m3	896.1		No IUR	No RfC
trans-1,2-Dichloroethene	ppbv	< 10	mg/M3	< 0.0396	ug/m3	< 39.6		No IUR	No RfC

ppbv = parts per billion by volume

VISL = vapor intrusion screening level

¹Results obtained using EPA's Vapor Intrusion Screening Level
Calculator, May 2016 Regional Screening Levels (RSLs)

Carcinogenic Risk Sum = 7.7E-05

Noncancer Hazard Index = 1.8E+01

 = risk results exceed criteria

Table 3 SSV-3

Date Collected

9/24/2016 11:13:00 AM

Sample

SSV-3 (Nondetects at the Method Detection Level)

Commercial¹
VISL Results

Analyte	Unit	Result	Unit	Result	Unit	Result	Qual	CR	HQ
Acetone	ppbv	44.4	mg/M3	0.1055	ug/m3	105.5		No IUR	2.30E-05
Benzene	ppbv	< 0.1	mg/M3	< 0.0003	ug/m3	< 0.3		5.70E-09	6.80E-05
Chlorobenzene	ppbv	< 0.1	mg/M3	< 0.0005	ug/m3	< 0.5		No IUR	6.80E-05
Chloroform	ppbv	< 0.2	mg/M3	< 0.001	ug/m3	< 1		5.60E-08	7.00E-05
1,2-Dichloroethane	ppbv	< 0.1	mg/M3	< 0.0004	ug/m3	< 0.4		2.50E-08	3.90E-04
Ethylbenzene	ppbv	< 0.1	mg/M3	< 0.0004	ug/m3	< 0.4		2.40E-09	2.70E-06
Methylene chloride	ppbv	< 0.1	mg/M3	< 0.0003	ug/m3	< 0.3		7.30E-12	3.40E-06
Naphthalene	ppbv	< 0.2	mg/M3	< 0.001	ug/m3	< 1		8.30E-08	2.30E-03
Tetrachloroethene	ppbv	4.38	mg/M3	0.0297	ug/m3	29.7		1.90E-08	5.10E-03
Toluene	ppbv	1.08	mg/M3	0.0041	ug/m3	4.1		No IUR	5.60E-06
1,1,1-Trichloroethane	ppbv	1.12	mg/M3	0.0061	ug/m3	6.1		No IUR	8.40E-06
Trichloroethene	ppbv	< 0.1	mg/M3	< 0.0005	ug/m3	< 0.5		5.00E-09	1.73E-03
Vinyl chloride	ppbv	< 0.1	mg/M3	< 0.0003	ug/m3	< 0.3		3.20E-09	2.10E-05
Xylenes, Total	ppbv	< 0.3	mg/M3	< 0.0013	ug/m3	< 1.3		No IUR	8.90E-05
cis-1,2-Dichloroethene	ppbv	< 0.1	mg/M3	< 0.0004	ug/m3	< 0.4		No IUR	No RfC
trans-1,2-Dichloroethene	ppbv	< 0.1	mg/M3	< 0.0004	ug/m3	< 0.4		No IUR	No RfC

ppbv = parts per billion by volume

VISL = vapor intrusion screening level

¹Results obtained using EPA's Vapor Intrusion Screening Level
Calculator, May 2016 Regional Screening Levels (RSLs)

Carcinogenic Risk Sum = 2.0E-07

Noncancer Hazard Index = 8.1E-03

Table 4 SSV-4

Date Collected

9/24/2016 11:07:00 AM

Sample

SSV-4 (Nondetects at the Method Detection Level)

Commercial¹
VISL Results

Analyte	Unit	Result	Unit	Result	Unit	Result	Qual	CR	HQ
Acetone	ppbv	53	mg/M3	0.1259	ug/m3	125.9		No IUR	2.80E-05
Benzene	ppbv	1.94	mg/M3	0.0062	ug/m3	6.2		1.20E-07	1.40E-03
Chlorobenzene	ppbv	< 0.1	mg/M3	< 0.0005	ug/m3	< 0.5		No IUR	6.80E-05
Chloroform	ppbv	< 0.2	mg/M3	< 0.001	ug/m3	< 1		5.60E-08	7.00E-05
1,2-Dichloroethane	ppbv	< 0.1	mg/M3	< 0.0004	ug/m3	< 0.4		2.50E-08	3.90E-04
Ethylbenzene	ppbv	1.44	mg/M3	0.0063	ug/m3	6.3		3.80E-08	4.30E-05
Methylene chloride	ppbv	< 0.1	mg/M3	< 0.0003	ug/m3	< 0.3		7.30E-12	3.40E-06
Naphthalene	ppbv	< 0.2	mg/M3	< 0.001	ug/m3	< 1		8.30E-08	2.30E-03
Tetrachloroethene	ppbv	4.86	mg/M3	0.033	ug/m3	33		2.10E-08	5.70E-03
Toluene	ppbv	4.56	mg/M3	0.0172	ug/m3	17.2		No IUR	2.40E-05
1,1,1-Trichloroethane	ppbv	< 0.1	mg/M3	< 0.0005	ug/m3	< 0.5		No IUR	6.80E-07
Trichloroethene	ppbv	< 0.1	mg/M3	< 0.0005	ug/m3	< 0.5		5.00E-09	1.70E-03
Vinyl chloride	ppbv	< 0.1	mg/M3	< 0.0003	ug/m3	< 0.3		3.20E-09	2.10E-05
Xylenes, Total	ppbv	< 0.3	mg/M3	< 0.0013	ug/m3	< 1.3		No IUR	8.90E-05
cis-1,2-Dichloroethene	ppbv	< 0.1	mg/M3	< 0.0004	ug/m3	< 0.4		No IUR	No RfC
trans-1,2-Dichloroethene	ppbv	< 0.1	mg/M3	< 0.0004	ug/m3	< 0.4		No IUR	No RfC

ppbv = parts per billion by volume

VISL = vapor intrusion screening level

¹Results obtained using EPA's Vapor Intrusion Screening Level
Calculator, May 2016 Regional Screening Levels (RSLs)

Carcinogenic Risk Sum = 3.5E-07

Noncancer Hazard Index = 1.2E-02

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VISL SUPPORTING DOCUMENTATION

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Queeny Site, St. Louis, MO SSV-1 Sub-Slab Sample

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR SG	1.00E-05	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard
		Csg (ug/m ³)	Cia (ug/m ³)	CR	HQ
67-64-1	Acetone	1.5E+03	4.49E+01	No IUR	3.3E-04
71-43-2	Benzene	3.2E+01	9.57E-01	6.1E-07	7.3E-03
108-90-7	Chlorobenzene	4.6E+01	1.38E+00	No IUR	6.3E-03
67-66-3	Chloroform	1.1E+03	3.16E+01	5.9E-05	7.4E-02
107-06-2	Dichloroethane, 1,2-	4.1E+01	1.22E+00	2.6E-06	4.0E-02
100-41-4	Ethylbenzene	4.3E+01	1.30E+00	2.7E-07	3.0E-04
75-09-2	Methylene Chloride	3.5E+01	1.04E+00	8.5E-10	4.0E-04
91-20-3	Naphthalene	1.0E+02	3.14E+00	8.7E-06	2.4E-01
127-18-4	Tetrachloroethylene	5.6E+04	1.68E+03	3.6E-05	9.6E+00
108-88-3	Toluene	3.8E+01	1.13E+00	No IUR	5.2E-05
71-55-6	Trichloroethane, 1,1,1-	1.5E+03	4.52E+01	No IUR	2.1E-03
79-01-6	Trichloroethylene	5.7E+04	1.71E+03	5.7E-04	2.0E+02
75-01-4	Vinyl Chloride	2.6E+01	7.68E-01	2.8E-07	1.8E-03
1330-20-7	Xylenes	1.3E+02	3.91E+00	No IUR	8.9E-03

Trichloroethylene
Vinyl Chloride

Symbol

See the Navigation Guide equation for Cia,c for vinyl chloride.

Inhalation Unit Risk	IUR	Reference Concentration	RfC	Mutagenic Indicator
	Source*		Source*	
IUR (ug/m ³) ⁻¹		RfC (mg/m ³)		i
7.80E-06	I	3.10E+01	A	
		3.00E-02	I	
		5.00E-02	P	
2.30E-05	I	9.80E-02	A	
2.60E-05	I	7.00E-03	P	
2.50E-06	CA	1.00E+00	I	
1.00E-08	I	6.00E-01	I	Mut
3.40E-05	CA	3.00E-03	I	
2.60E-07	I	4.00E-02	I	
		5.00E+00	I	
		5.00E+00	I	
see note	I	2.00E-03	I	TCE
4.40E-06	I	1.00E-01	I	VC
		1.00E-01	I	

Value

Symbol

Value

Symbol

Value

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Queeny Site, St. Louis, MO SSV-2 Sub-Slab Sample

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR SG	1.00E-05	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard
		Csg (ug/m ³)	Cia (ug/m ³)	CR	HQ
67-64-1	Acetone	9.5E+01	2.85E+00	No IUR	2.1E-05
71-43-2	Benzene	3.2E+01	9.57E-01	6.1E-07	7.3E-03
108-90-7	Chlorobenzene	4.6E+01	1.38E+00	No IUR	6.3E-03
67-66-3	Chloroform	9.8E+01	2.93E+00	5.5E-06	6.8E-03
107-06-2	Dichloroethane, 1,2-	4.0E+01	1.19E+00	2.5E-06	3.9E-02
100-41-4	Ethylbenzene	4.3E+01	1.30E+00	2.7E-07	3.0E-04
75-09-2	Methylene Chloride	3.5E+01	1.04E+00	8.5E-10	4.0E-04
91-20-3	Naphthalene	1.0E+02	3.14E+00	8.7E-06	2.4E-01
127-18-4	Tetrachloroethylene	4.9E+04	1.47E+03	3.1E-05	8.4E+00
108-88-3	Toluene	3.8E+01	1.13E+00	No IUR	5.2E-05
71-55-6	Trichloroethane, 1,1,1-	2.2E+03	6.71E+01	No IUR	3.1E-03
79-01-6	Trichloroethylene	2.8E+03	8.35E+01	2.8E-05	9.5E+00
75-01-4	Vinyl Chloride	2.6E+01	7.68E-01	2.8E-07	1.8E-03
1330-20-7	Xylenes	1.3E+02	3.91E+00	No IUR	8.9E-03

Trichloroethylene
Vinyl Chloride

See the Navigation Guide equation for Cia,c for vinyl chloride.

Symbol

Inhalation Unit Risk	IUR	Reference Concentration	RfC	Mutagenic Indicator
(ug/m ³) ⁻¹	Source*		(mg/m ³)	i
		3.10E+01	A	
7.80E-06	I	3.00E-02	I	
		5.00E-02	P	
2.30E-05	I	9.80E-02	A	
2.60E-05	I	7.00E-03	P	
2.50E-06	CA	1.00E+00	I	
1.00E-08	I	6.00E-01	I	Mut
3.40E-05	CA	3.00E-03	I	
2.60E-07	I	4.00E-02	I	
		5.00E+00	I	
		5.00E+00	I	
see note	I	2.00E-03	I	TCE
4.40E-06	I	1.00E-01	I	VC
		1.00E-01	I	

Value

Symbol

Value

Symbol

Value

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Queeny Site, St. Louis, MO SSV-3 Sub-Slab Sample

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR SG	1.00E-05	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard
		Csg (ug/m ³)	Cia (ug/m ³)	CR	HQ
67-64-1	Acetone	1.1E+02	3.17E+00	No IUR	2.3E-05
71-43-2	Benzene	3.0E-01	9.00E-03	5.7E-09	6.8E-05
108-90-7	Chlorobenzene	5.0E-01	1.50E-02	No IUR	6.8E-05
67-66-3	Chloroform	1.0E+00	3.00E-02	5.6E-08	7.0E-05
107-06-2	Dichloroethane, 1,2-	4.0E-01	1.20E-02	2.5E-08	3.9E-04
100-41-4	Ethylbenzene	4.0E-01	1.20E-02	2.4E-09	2.7E-06
75-09-2	Methylene Chloride	3.0E-01	9.00E-03	7.3E-12	3.4E-06
91-20-3	Naphthalene	1.0E+00	3.00E-02	8.3E-08	2.3E-03
127-18-4	Tetrachloroethylene	3.0E+01	8.91E-01	1.9E-08	5.1E-03
108-88-3	Toluene	4.1E+00	1.23E-01	No IUR	5.6E-06
71-55-6	Trichloroethane, 1,1,1-	6.1E+00	1.83E-01	No IUR	8.4E-06
79-01-6	Trichloroethylene	5.0E-01	1.50E-02	5.0E-09	1.7E-03
75-01-4	Vinyl Chloride	3.0E-01	9.00E-03	3.2E-09	2.1E-05
1330-20-7	Xylenes	1.3E+00	3.90E-02	No IUR	8.9E-05

Trichloroethylene
Vinyl Chloride

See the Navigation Guide equation for Cia,c for vinyl chloride.

Symbol

Value

Inhalation Unit Risk	IUR	Reference Concentration	RfC	Mutagenic Indicator
(ug/m ³) ⁻¹	Source*	(mg/m ³)	Source*	i
		3.10E+01	A	
7.80E-06	I	3.00E-02	I	
		5.00E-02	P	
2.30E-05	I	9.80E-02	A	
2.60E-05	I	7.00E-03	P	
2.50E-06	CA	1.00E+00	I	
1.00E-08	I	6.00E-01	I	Mut
3.40E-05	CA	3.00E-03	I	
2.60E-07	I	4.00E-02	I	
		5.00E+00	I	
		5.00E+00	I	
see note	I	2.00E-03	I	TCE
4.40E-06	I	1.00E-01	I	VC
		1.00E-01	I	

Symbol

Value

Symbol

Value

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Queeny Site, St. Louis, MO SSV-4 Sub-Slab Sample

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-05	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard
		Csq (ug/m ³)	Cia (ug/m ³)	CR	HQ
67-64-1	Acetone	1.3E+02	3.78E+00	No IUR	2.8E-05
71-43-2	Benzene	6.2E+00	1.86E-01	1.2E-07	1.4E-03
108-90-7	Chlorobenzene	5.0E-01	1.50E-02	No IUR	6.8E-05
67-66-3	Chloroform	1.0E+00	3.00E-02	5.6E-08	7.0E-05
107-06-2	Dichloroethane, 1,2-	4.0E-01	1.20E-02	2.5E-08	3.9E-04
100-41-4	Ethylbenzene	6.3E+00	1.89E-01	3.9E-08	4.3E-05
75-09-2	Methylene Chloride	3.0E-01	9.00E-03	7.3E-12	3.4E-06
91-20-3	Naphthalene	1.0E+00	3.00E-02	8.3E-08	2.3E-03
127-18-4	Tetrachloroethylene	3.3E+01	9.90E-01	2.1E-08	5.7E-03
108-88-3	Toluene	1.7E+01	5.16E-01	No IUR	2.4E-05
71-55-6	Trichloroethane, 1,1,1-	5.0E-01	1.50E-02	No IUR	6.8E-07
79-01-6	Trichloroethylene	5.0E-01	1.50E-02	5.0E-09	1.7E-03
75-01-4	Vinyl Chloride	3.0E-01	9.00E-03	3.2E-09	2.1E-05
1330-20-7	Xylenes	1.3E+00	3.90E-02	No IUR	8.9E-05

Trichloroethylene
Vinyl Chloride

See the Navigation Guide equation for Cia,c for vinyl chloride.

Symbol

Value

Inhalation Unit Risk	IUR Source*	Reference Concentration	RfC Source*	Mutagenic Indicator
IUR (ug/m ³) ⁻¹		RfC (mg/m ³)		i
7.80E-06	I	3.10E+01	A	
		3.00E-02	I	
		5.00E-02	P	
2.30E-05	I	9.80E-02	A	
2.60E-05	I	7.00E-03	P	
2.50E-06	CA	1.00E+00	I	
1.00E-08	I	6.00E-01	I	Mut
3.40E-05	CA	3.00E-03	I	
2.60E-07	I	4.00E-02	I	
		5.00E+00	I	
		5.00E+00	I	
see note	I	2.00E-03	I	TCE
4.40E-06	I	1.00E-01	I	VC
		1.00E-01	I	

Symbol

Value

Symbol

Value

Mr. Bruce Morrison
February 9, 2017

LABORATORY ANALYTICAL REPORT

September 30, 2016

Larry Rosen
Environmental Operations, Inc.
1530 South Second Street, Suite 200
St. Louis, MO 63104
TEL: (314) 480-4694
FAX: (314) 436-2900



RE: Solutia 2950R

WorkOrder: 16091675

Dear Larry Rosen:

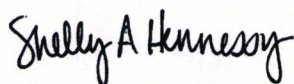
TEKLAB, INC received 4 samples on 9/25/2016 4:20:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Shelly A. Hennessy
Project Manager
(618)344-1004 ex 36
SHennessy@teklabinc.com



Report Contents

<http://www.teklabinc.com/>

Client: Environmental Operations, Inc.

Work Order: 16091675

Client Project: Solutia 2950R

Report Date: 30-Sep-16

This reporting package includes the following:

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Quality Control Results	9
Receiving Check List	12
Chain of Custody	Appended



Definitions

<http://www.teklabinc.com/>

Client: Environmental Operations, Inc.

Work Order: 16091675

Client Project: Solutia 2950R

Report Date: 30-Sep-16

Abbr Definition

CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# - Unknown hydrocarbon	B - Analyte detected in associated Method Blank
E - Value above quantitation range	H - Holding times exceeded
I - Associated internal standard was outside method criteria	M - Manual Integration used to determine area response
ND - Not Detected at the Reporting Limit	R - RPD outside accepted recovery limits
S - Spike Recovery outside recovery limits	T - TIC(Tentatively identified compound)
X - Value exceeds Maximum Contaminant Level	



Case Narrative

<http://www.teklabinc.com/>

Client: Environmental Operations, Inc.

Work Order: 16091675

Client Project: Solutia 2950R

Report Date: 30-Sep-16

Cooler Receipt Temp: NA °C

TO15 analysis was performed at the North Bluff Road facility in Collinsville Illinois, Agency Interest No. 166578.

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2017	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2017	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2017	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2017	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2017	Collinsville
Arkansas	ADEQ	88-0966		3/14/2017	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2016	Collinsville
Kentucky	UST	0073		1/31/2017	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Missouri	MDNR	930		1/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2017	Collinsville



Laboratory Results

<http://www.teklabinc.com/>

Client: Environmental Operations, Inc.

Work Order: 16091675

Client Project: Solutia 2950R

Report Date: 30-Sep-16

Lab ID: 16091675-001

Client Sample ID: SSV-4

Matrix: AIR CANISTER

Collection Date: 09/24/2016 11:07

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed
TO-15, VOLATILE ORGANIC COMPOUNDS, BY GC/MS								
1,1,1-Trichloroethane	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 18:38
MW 133.40		0.0005	0.0055		ND	mg/m3		
1,2-Dichloroethane	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 18:38
MW 98.96		0.0004	0.004		ND	mg/m3		
Acetone	NELAP	4	40.0		53.0	ppbv	20	09/27/2016 18:53
MW 58.08		0.0095	0.095		0.1259	mg/m3		
Benzene	NELAP	0.1	1.00		1.94	ppbv	2	09/28/2016 18:38
MW 78.11		0.0003	0.0032		0.0062	mg/m3		
Chlorobenzene	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 18:38
MW 112.56		0.0005	0.0046		ND	mg/m3		
Chloroform	NELAP	0.2	1.00		ND	ppbv	2	09/28/2016 18:38
MW 119.38		0.001	0.0049		ND	mg/m3		
cis-1,2-Dichloroethene	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 18:38
MW 96.94		0.0004	0.004		ND	mg/m3		
Ethylbenzene	NELAP	0.1	1.00		1.44	ppbv	2	09/28/2016 18:38
MW 106.17		0.0004	0.0043		0.0063	mg/m3		
Methylene chloride	NELAP	0.1	2.00		ND	ppbv	2	09/28/2016 18:38
MW 84.93		0.0003	0.0069		ND	mg/m3		
Naphthalene	NELAP	0.2	1.00		ND	ppbv	2	09/28/2016 18:38
MW 128.17		0.001	0.0052		ND	mg/m3		
Tetrachloroethene	NELAP	0.1	1.00		4.86	ppbv	2	09/28/2016 18:38
MW 165.83		0.0007	0.0068		0.033	mg/m3		
Toluene	NELAP	0.1	1.00		4.56	ppbv	2	09/28/2016 18:38
MW 92.14		0.0004	0.0038		0.0172	mg/m3		
trans-1,2-Dichloroethene	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 18:38
MW 96.94		0.0004	0.004		ND	mg/m3		
Trichloroethene	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 18:38
MW 131.39		0.0005	0.0054		ND	mg/m3		
Vinyl chloride	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 18:38
MW 62.50		0.0003	0.0026		ND	mg/m3		
Xylenes, Total	NELAP	0.3	3.00		ND	ppbv	2	09/28/2016 18:38
MW 106.17		0.0013	0.013		ND	mg/m3		
Surr: 4-Bromofluorobenzene		0	41.2-165		95.1	%REC	2	09/28/2016 18:38
MW 175.00		0	41.2-165		95.1	%REC		

Elevated reporting limit due to high levels of target and/or non-target analytes.



Laboratory Results

<http://www.teklabinc.com/>

Client: Environmental Operations, Inc.

Work Order: 16091675

Client Project: Solutia 2950R

Report Date: 30-Sep-16

Lab ID: 16091675-002

Client Sample ID: SSV-2

Matrix: AIR CANISTER

Collection Date: 09/24/2016 9:43

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed
TO-15, VOLATILE ORGANIC COMPOUNDS, BY GC/MS								
1,1,1-Trichloroethane	NELAP	10	100		410	ppbv	200	09/28/2016 19:27
MW 133.40		0.0546	0.5456		2.237	mg/m3		
1,2-Dichloroethane	NELAP	10	100		ND	ppbv	200	09/28/2016 19:27
MW 98.96		0.0405	0.4047		ND	mg/m3		
Acetone	NELAP	40	400		ND	ppbv	200	09/28/2016 19:27
MW 58.08		0.095	0.9502		ND	mg/m3		
Benzene	NELAP	10	100		ND	ppbv	200	09/28/2016 19:27
MW 78.11		0.0319	0.3195		ND	mg/m3		
Chlorobenzene	NELAP	10	100		ND	ppbv	200	09/28/2016 19:27
MW 112.56		0.046	0.4604		ND	mg/m3		
Chloroform	NELAP	20	100		ND	ppbv	200	09/28/2016 19:27
MW 119.38		0.0977	0.4883		ND	mg/m3		
cis-1,2-Dichloroethene	NELAP	10	100		226	ppbv	200	09/28/2016 19:27
MW 96.94		0.0396	0.3965		0.8961	mg/m3		
Ethylbenzene	NELAP	10	100		ND	ppbv	200	09/28/2016 19:27
MW 106.17		0.0434	0.4342		ND	mg/m3		
Methylene chloride	NELAP	10	200		ND	ppbv	200	09/28/2016 19:27
MW 84.93		0.0347	0.6947		ND	mg/m3		
Naphthalene	NELAP	20	100		ND	ppbv	200	09/28/2016 19:27
MW 128.17		0.1048	0.5242		ND	mg/m3		
Tetrachloroethene	NELAP	50	500		7220	ppbv	1000	09/29/2016 10:27
MW 165.83		0.3391	3.3913		48.97	mg/m3		
Toluene	NELAP	10	100		ND	ppbv	200	09/28/2016 19:27
MW 92.14		0.0377	0.3768		ND	mg/m3		
trans-1,2-Dichloroethene	NELAP	10	100		ND	ppbv	200	09/28/2016 19:27
MW 96.94		0.0396	0.3965		ND	mg/m3		
Trichloroethene	NELAP	10	100		518	ppbv	200	09/28/2016 19:27
MW 131.39		0.0537	0.5374		2.7836	mg/m3		
Vinyl chloride	NELAP	10	100		ND	ppbv	200	09/28/2016 19:27
MW 62.50		0.0256	0.2556		ND	mg/m3		
Xylenes, Total	NELAP	30	300		ND	ppbv	200	09/28/2016 19:27
MW 106.17		0.1303	1.3026		ND	mg/m3		
Surr: 4-Bromofluorobenzene		0	41.2-165		98.9	%REC	200	09/28/2016 19:27
MW 175.00		0	41.2-165		98.9	%REC		

Elevated reporting limit due to high levels of target and/or non-target analytes.



Laboratory Results

<http://www.teklabinc.com/>

Client: Environmental Operations, Inc.

Work Order: 16091675

Client Project: Solutia 2950R

Report Date: 30-Sep-16

Lab ID: 16091675-003

Client Sample ID: SSV-1

Matrix: AIR CANISTER

Collection Date: 09/24/2016 9:26

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed
TO-15, VOLATILE ORGANIC COMPOUNDS, BY GC/MS								
1,1,1-Trichloroethane	NELAP	10	100		276	ppbv	200	09/28/2016 20:16
MW 133.40		0.0546	0.5456		1.5059	mg/m3		
1,2-Dichloroethane	NELAP	10	100		ND	ppbv	200	09/28/2016 20:16
MW 98.96		0.0405	0.4047		ND	mg/m3		
Acetone	NELAP	40	400		630	ppbv	200	09/28/2016 20:16
MW 58.08		0.095	0.9502		1.4965	mg/m3		
Benzene	NELAP	10	100		ND	ppbv	200	09/28/2016 20:16
MW 78.11		0.0319	0.3195		ND	mg/m3		
Chlorobenzene	NELAP	10	100		ND	ppbv	200	09/28/2016 20:16
MW 112.56		0.046	0.4604		ND	mg/m3		
Chloroform	NELAP	20	100		216	ppbv	200	09/28/2016 20:16
MW 119.38		0.0977	0.4883		1.0546	mg/m3		
cis-1,2-Dichloroethene	NELAP	10	100		172	ppbv	200	09/28/2016 20:16
MW 96.94		0.0396	0.3965		0.682	mg/m3		
Ethylbenzene	NELAP	10	100		ND	ppbv	200	09/28/2016 20:16
MW 106.17		0.0434	0.4342		ND	mg/m3		
Methylene chloride	NELAP	10	200		ND	ppbv	200	09/28/2016 20:16
MW 84.93		0.0347	0.6947		ND	mg/m3		
Naphthalene	NELAP	20	100		ND	ppbv	200	09/28/2016 20:16
MW 128.17		0.1048	0.5242		ND	mg/m3		
Tetrachloroethene	NELAP	50	500		8240	ppbv	1000	09/29/2016 11:12
MW 165.83		0.3391	3.3913		55.8882	mg/m3		
Toluene	NELAP	10	100		ND	ppbv	200	09/28/2016 20:16
MW 92.14		0.0377	0.3768		ND	mg/m3		
trans-1,2-Dichloroethene	NELAP	10	100		108	ppbv	200	09/28/2016 20:16
MW 96.94		0.0396	0.3965		0.4282	mg/m3		
Trichloroethene	NELAP	50	500		10600	ppbv	1000	09/29/2016 11:12
MW 131.39		0.2687	2.6869		56.9618	mg/m3		
Vinyl chloride	NELAP	10	100		ND	ppbv	200	09/28/2016 20:16
MW 62.50		0.0256	0.2556		ND	mg/m3		
Xylenes, Total	NELAP	30	300		ND	ppbv	200	09/28/2016 20:16
MW 106.17		0.1303	1.3026		ND	mg/m3		
Surr: 4-Bromofluorobenzene		0	41.2-165		95.8	%REC	200	09/28/2016 20:16
MW 175.00		0	41.2-165		95.8	%REC		

Elevated reporting limit due to high levels of target and/or non-target analytes.



Laboratory Results

<http://www.teklabinc.com/>

Client: Environmental Operations, Inc.

Work Order: 16091675

Client Project: Solutia 2950R

Report Date: 30-Sep-16

Lab ID: 16091675-004

Client Sample ID: SSV-3

Matrix: AIR CANISTER

Collection Date: 09/24/2016 11:13

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed
TO-15, VOLATILE ORGANIC COMPOUNDS, BY GC/MS								
1,1,1-Trichloroethane	NELAP	0.1	1.00		1.12	ppbv	2	09/28/2016 21:04
MW 133.40		0.0005	0.0055		0.0061	mg/m3		
1,2-Dichloroethane	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 21:04
MW 98.96		0.0004	0.004		ND	mg/m3		
Acetone	NELAP	4	40.0		44.4	ppbv	20	09/27/2016 21:06
MW 58.08		0.0095	0.095		0.1055	mg/m3		
Benzene	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 21:04
MW 78.11		0.0003	0.0032		ND	mg/m3		
Chlorobenzene	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 21:04
MW 112.56		0.0005	0.0046		ND	mg/m3		
Chloroform	NELAP	0.2	1.00		ND	ppbv	2	09/28/2016 21:04
MW 119.38		0.001	0.0049		ND	mg/m3		
cis-1,2-Dichloroethene	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 21:04
MW 96.94		0.0004	0.004		ND	mg/m3		
Ethylbenzene	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 21:04
MW 106.17		0.0004	0.0043		ND	mg/m3		
Methylene chloride	NELAP	0.1	2.00		ND	ppbv	2	09/28/2016 21:04
MW 84.93		0.0003	0.0069		ND	mg/m3		
Naphthalene	NELAP	0.2	1.00		ND	ppbv	2	09/28/2016 21:04
MW 128.17		0.001	0.0052		ND	mg/m3		
Tetrachloroethene	NELAP	0.1	1.00		4.38	ppbv	2	09/28/2016 21:04
MW 165.83		0.0007	0.0068		0.0297	mg/m3		
Toluene	NELAP	0.1	1.00		1.08	ppbv	2	09/28/2016 21:04
MW 92.14		0.0004	0.0038		0.0041	mg/m3		
trans-1,2-Dichloroethene	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 21:04
MW 96.94		0.0004	0.004		ND	mg/m3		
Trichloroethene	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 21:04
MW 131.39		0.0005	0.0054		ND	mg/m3		
Vinyl chloride	NELAP	0.1	1.00		ND	ppbv	2	09/28/2016 21:04
MW 62.50		0.0003	0.0026		ND	mg/m3		
Xylenes, Total	NELAP	0.3	3.00		ND	ppbv	2	09/28/2016 21:04
MW 106.17		0.0013	0.013		ND	mg/m3		
Surr: 4-Bromofluorobenzene		0	41.2-165		95.6	%REC	2	09/28/2016 21:04
MW 175.00		0	41.2-165		95.6	%REC		

Elevated reporting limit due to high levels of target and/or non-target analytes.



Quality Control Results

<http://www.teklabinc.com/>

Client: Environmental Operations, Inc.

Work Order: 16091675

Client Project: Solutia 2950R

Report Date: 30-Sep-16

TO-15, VOLATILE ORGANIC COMPOUNDS, BY GC/MS

Batch 122846 SampType: MBLK Units ppbv
SampID: MBLK-U160927-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	0.50		ND						09/27/2016
1,2-Dichloroethane	0.50		ND						09/27/2016
Acetone	2.00		ND						09/27/2016
Benzene	0.50		ND						09/27/2016
Chlorobenzene	0.50		ND						09/27/2016
Chloroform	0.50		ND						09/27/2016
cis-1,2-Dichloroethene	0.50		ND						09/27/2016
Ethylbenzene	0.50		ND						09/27/2016
Methylene chloride	1.00		ND						09/27/2016
Naphthalene	0.50		ND						09/27/2016
Tetrachloroethene	0.50		ND						09/27/2016
Toluene	0.50		ND						09/27/2016
trans-1,2-Dichloroethene	0.50		ND						09/27/2016
Trichloroethene	0.50		ND						09/27/2016
Vinyl chloride	0.50		ND						09/27/2016
Xylenes, Total	1.50		ND						09/27/2016
Surr: 4-Bromofluorobenzene			9.68	10.00		96.8	41.2	165	09/27/2016

Batch 122846 SampType: LCSD Units ppbv
SampID: LCSD-U160927-1

RPD Limit 30

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	0.50		9.06	10.10	0	89.7	8.970	1.00	09/27/2016
1,2-Dichloroethane	0.50		10.4	10.00	0	103.8	10.32	0.58	09/27/2016
Acetone	2.00		10.6	10.90	0	96.8	10.63	0.76	09/27/2016
Benzene	0.50		9.77	10.40	0	93.9	9.710	0.62	09/27/2016
Chlorobenzene	0.50		10.8	10.60	0	101.6	10.72	0.47	09/27/2016
Chloroform	0.50		9.91	10.40	0	95.3	9.920	0.10	09/27/2016
cis-1,2-Dichloroethene	0.50		9.66	10.10	0	95.6	9.620	0.41	09/27/2016
Ethylbenzene	0.50		10.4	10.60	0	98.4	10.40	0.29	09/27/2016
Methylene chloride	1.00		9.85	9.500	0	103.7	9.830	0.20	09/27/2016
Naphthalene	0.50		14.5	10.60	0	136.7	13.98	3.58	09/27/2016
Tetrachloroethene	0.50		10.3	10.50	0	98.2	10.26	0.49	09/27/2016
Toluene	0.50		9.92	10.50	0	94.5	9.880	0.40	09/27/2016
trans-1,2-Dichloroethene	0.50		10.4	11.00	0	94.3	10.37	0.00	09/27/2016
Trichloroethene	0.50		10.3	10.80	0	95.0	10.22	0.39	09/27/2016
Vinyl chloride	0.50		10.7	10.40	0	102.5	10.63	0.28	09/27/2016
Xylenes, Total	1.50		32.2	31.30	0	102.8	32.19	0.06	09/27/2016
Surr: 4-Bromofluorobenzene			10.0	10.00		100.1			09/27/2016



Quality Control Results

<http://www.teklabinc.com/>

Client: Environmental Operations, Inc.

Work Order: 16091675

Client Project: Solutia 2950R

Report Date: 30-Sep-16

TO-15, VOLATILE ORGANIC COMPOUNDS, BY GC/MS

Batch 122846 SampType: LCS Units ppbv
SampID: LCS-U160927-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	0.50		8.97	10.10	0	88.8	54.7	131	09/27/2016
1,2-Dichloroethane	0.50		10.3	10.00	0	103.2	58.1	142	09/27/2016
Acetone	2.00		10.6	10.90	0	97.5	67.6	151	09/27/2016
Benzene	0.50		9.71	10.40	0	93.4	57.5	137	09/27/2016
Chlorobenzene	0.50		10.7	10.60	0	101.1	59.6	155	09/27/2016
Chloroform	0.50		9.92	10.40	0	95.4	72.3	136	09/27/2016
cis-1,2-Dichloroethene	0.50		9.62	10.10	0	95.2	78	138	09/27/2016
Ethylbenzene	0.50		10.4	10.60	0	98.1	58.3	158	09/27/2016
Methylene chloride	1.00		9.83	9.500	0	103.5	68.1	130	09/27/2016
Naphthalene	0.50		14.0	10.60	0	131.9	0	261	09/27/2016
Tetrachloroethene	0.50		10.3	10.50	0	97.7	60.3	148	09/27/2016
Toluene	0.50		9.88	10.50	0	94.1	56.9	150	09/27/2016
trans-1,2-Dichloroethene	0.50		10.4	10.00	0	103.7	69	134	09/27/2016
Trichloroethene	0.50		10.2	10.80	0	94.6	59.2	141	09/27/2016
Vinyl chloride	0.50		10.6	10.40	0	102.2	65	125	09/27/2016
Xylenes, Total	1.50		32.2	31.30	0	102.8	56	146	09/27/2016
Surr: 4-Bromofluorobenzene			10.1	10.00		100.7	41.2	165	09/27/2016

Batch 122887 SampType: MBLK Units ppbv
SampID: MBLK-U160928-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	0.50		ND						09/28/2016
1,2-Dichloroethane	0.50		ND						09/28/2016
Acetone	2.00		ND						09/28/2016
Benzene	0.50		ND						09/28/2016
Benzene	0.50		ND						09/28/2016
Chlorobenzene	0.50		ND						09/28/2016
Chloroform	0.50		ND						09/28/2016
cis-1,2-Dichloroethene	0.50		ND						09/28/2016
Ethylbenzene	0.50		ND						09/28/2016
Ethylbenzene	0.50		ND						09/28/2016
Methylene chloride	1.00		ND						09/28/2016
Naphthalene	0.50		ND						09/28/2016
Tetrachloroethene	0.50		ND						09/28/2016
Toluene	0.50		ND						09/28/2016
Toluene	0.50		ND						09/28/2016
trans-1,2-Dichloroethene	0.50		ND						09/28/2016
Trichloroethene	0.50		ND						09/28/2016
Vinyl chloride	0.50		ND						09/28/2016
Xylenes, Total	1.50		ND						09/28/2016
Surr: 4-Bromofluorobenzene			8.85	10.00		88.5	41.2	165	09/28/2016
Surr: 4-Bromofluorobenzene			9.07	10.00		90.7	41.2	165	09/28/2016



Quality Control Results

<http://www.teklabinc.com/>

Client: Environmental Operations, Inc.

Work Order: 16091675

Client Project: Solutia 2950R

Report Date: 30-Sep-16

TO-15, VOLATILE ORGANIC COMPOUNDS, BY GC/MS

Batch 122887	SampType: LCSD	Units ppbv				RPD Limit 30				
SampID: LCSD-U160928-1										Date Analyzed
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
1,1,1-Trichloroethane	0.50		9.63	10.10	0	95.3	9.320	3.27	09/28/2016	
1,2-Dichloroethane	0.50		11.1	10.00	0	111.2	10.96	1.45	09/28/2016	
Acetone	2.00		11.5	10.90	0	105.5	11.37	1.14	09/28/2016	
Benzene	0.50		8.97	10.40	0	86.2	8.700	3.06	09/28/2016	
Benzene	0.50		10.5	10.40	0	100.8	10.17	3.00	09/28/2016	
Chlorobenzene	0.50		11.5	10.60	0	108.9	11.21	2.90	09/28/2016	
Chloroform	0.50		10.4	10.40	0	100.3	10.25	1.74	09/28/2016	
cis-1,2-Dichloroethene	0.50		10.2	10.10	0	100.9	9.960	2.28	09/28/2016	
Ethylbenzene	0.50		11.3	10.60	0	106.3	10.96	2.79	09/28/2016	
Ethylbenzene	0.50		10.6	10.60	0	99.8	10.29	2.78	09/28/2016	
Methylene chloride	1.00		10.5	9.500	0	110.7	10.32	1.92	09/28/2016	
Naphthalene	0.50		16.6	10.60	0	157.0	15.24	8.78	09/28/2016	
Tetrachloroethene	0.50		10.9	10.50	0	104.0	10.62	2.79	09/28/2016	
Toluene	0.50		10.6	10.50	0	100.6	10.28	2.69	09/28/2016	
Toluene	0.50		9.46	10.50	0	90.1	9.210	2.68	09/28/2016	
trans-1,2-Dichloroethene	0.50		11.0	11.00	0	99.8	10.81	1.56	09/28/2016	
Trichloroethene	0.50		10.9	10.80	0	101.1	10.62	2.79	09/28/2016	
Vinyl chloride	0.50		11.5	10.40	0	110.2	11.24	1.94	09/28/2016	
Xylenes, Total	1.50		34.9	31.30	0	111.5	34.07	2.41	09/28/2016	
Surr: 4-Bromofluorobenzene			8.81	10.00		88.1			09/28/2016	
Surr: 4-Bromofluorobenzene			8.60	10.00		86.0			09/28/2016	

Batch 122887	SampType: LCS	Units ppbv							
SampID: LCS-U160928-1									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	0.50		9.32	10.10	0	92.3	54.7	131	09/28/2016
1,2-Dichloroethane	0.50		11.0	10.00	0	109.6	58.1	142	09/28/2016
Acetone	2.00		11.4	10.90	0	104.3	67.6	151	09/28/2016
Benzene	0.50		10.2	10.40	0	97.8	57.5	137	09/28/2016
Benzene	0.50		8.70	10.40	0	83.7	57.5	137	09/28/2016
Chlorobenzene	0.50		11.2	10.60	0	105.8	59.6	155	09/28/2016
Chloroform	0.50		10.2	10.40	0	98.6	72.3	136	09/28/2016
cis-1,2-Dichloroethene	0.50		9.96	10.10	0	98.6	78	138	09/28/2016
Ethylbenzene	0.50		11.0	10.60	0	103.4	58.3	158	09/28/2016
Ethylbenzene	0.50		10.3	10.60	0	97.1	58.3	158	09/28/2016
Methylene chloride	1.00		10.3	9.500	0	108.6	68.1	130	09/28/2016
Naphthalene	0.50		15.2	10.60	0	143.8	0	261	09/28/2016
Tetrachloroethene	0.50		10.6	10.50	0	101.1	60.3	148	09/28/2016
Toluene	0.50		10.3	10.50	0	97.9	56.9	150	09/28/2016
Toluene	0.50		9.21	10.50	0	87.7	56.9	150	09/28/2016
trans-1,2-Dichloroethene	0.50		10.8	10.00	0	108.1	69	134	09/28/2016
Trichloroethene	0.50		10.6	10.80	0	98.3	59.2	141	09/28/2016
Vinyl chloride	0.50		11.2	10.40	0	108.1	65	125	09/28/2016
Xylenes, Total	1.50		34.1	31.30	0	108.8	56	146	09/28/2016
Surr: 4-Bromofluorobenzene			8.91	10.00		89.1	41.2	165	09/28/2016
Surr: 4-Bromofluorobenzene			9.13	10.00		91.3	41.2	165	09/28/2016



Receiving Check List

<http://www.teklabinc.com/>

Client: Environmental Operations, Inc.

Work Order: 16091675

Client Project: Solutia 2950R

Report Date: 30-Sep-16

Carrier: John Riley

Received By: AMD

Completed by:

On:

26-Sep-16

Amber M. Dilallo

Amber M. Dilallo

Reviewed by:

On:

26-Sep-16

Elizabeth A. Hurley

Elizabeth A. Hurley

Pages to follow: Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Temp °C NA

Type of thermal preservation?

None ☒

Ice ☐

Blue Ice ☐

Dry Ice ☐

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Reported field parameters measured:

Field ☐

Lab ☐

NA ☒

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water - at least one vial per sample has zero headspace?

Yes ☐

No ☐

No VOA vials ☒

Water - TOX containers have zero headspace?

Yes ☐

No ☐

No TOX containers ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

NA ☒

NPDES/CWA TCN interferences checked/treated in the field?

Yes ☐

No ☐

NA ☒

Any No responses must be detailed below or on the COC.

Samples were transferred to Collinsville Air Lab on 9/27/16 at 9:50AM. EAH 9/27/16

Clients final pressure readings followed by readings taken upon arrival at the laboratory. Controller used not indicated, digital gauge used for lab reading. HLR 9/27/16

SSV-4 -5/-3.08

SSV-2 -5/-3.88

SSV-1 -5.5/-2.73

SSV-3 -1/-1.06

TEKLAB, INC.

3920 Pintail Drive Suite A, Springfield, IL 62711 Phone (217) 698-1004 Fax (217) 698-1005
 5445 Horseshoe Lake Road, Collinsville, IL 62234 Phone (618) 344-1004 Fax (618) 344-1005

pg 1 of 1Lab Work Order # 160911675**AIR SAMPLING FIELD FORM AND CHAIN OF CUSTODY**

Client Name: <u>Environmental Operations</u>				Results Requested (check one)				Sample Type (check one)			
Address: <u>1530 South 2nd Street</u>				<input checked="" type="checkbox"/> Standard				<input type="checkbox"/> Ambient Air <input checked="" type="checkbox"/> Soil Gas/Vapor			
Phone: _____				1-3 Day (100% surcharge)				<input type="checkbox"/> Indoor Air <input type="checkbox"/> Landfill Gas			
Email: <u>Larry@environmentalslpc.com</u>				4-5 Day (50% surcharge)				<input checked="" type="checkbox"/> Indoor Sub-Slab <input type="checkbox"/> Other (specify)			
Project ID: _____				Other (specify below)				Stack			
Project Manager: <u>Larry Kosen</u>				Lab Use Only: Sample pick up: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N, Samples on: <input type="checkbox"/> Ice/Blue <input checked="" type="checkbox"/> No Ice, <input checked="" type="checkbox"/> Temp. °C							
Sampler: <u>Robert Andrews</u>				Comments:							
PO Number: <u>2950 R</u>											

Lab Use Only				Sample Start Parameters						Sample Stop Parameters						Requested Analysis (list metals/other below in comments)					
Laboratory ID	Sample Identification	Canister Number	Controller Number	Date		Time	Vacuum (in. Hg)	Date		Time	Vacuum (in. Hg)	TO-15 Lists (circle) Standard Extended	TO-15 select BTEX MBTE Naphthalene Isopropanol TPH-GRO	TO-13	TO-4	PM10/TSP	Metals	Other			
	SSV-1	16090141-001		9-24	9:08			9-24	9:24												
	SSV-2	16090141-002		9-24	9																
	SSV-3	16090141-003		9-24																	
<u>160911675-001</u>	<u>SSV-4</u>	<u>0658</u>	<u>—</u>	<u>9-24</u>	<u>10:57</u>	<u>-23'</u>		<u>9-24</u>	<u>11:07</u>	<u>-5'</u>		<input checked="" type="checkbox"/>									
<u>002</u>	<u>SSV-2</u>	<u>0863</u>	<u>—</u>	<u>9-24</u>	<u>9:33</u>	<u>-29</u>		<u>9-24</u>	<u>9:43</u>	<u>-5</u>		<input checked="" type="checkbox"/>									
<u>003</u>	<u>SSV-1</u>	<u>0675</u>	<u>—</u>	<u>9-24</u>	<u>9:09</u>	<u>-31"</u>		<u>9-24</u>	<u>9:26</u>	<u>-5.5</u>		<input checked="" type="checkbox"/>									
<u>004</u>	<u>SSV-3</u>	<u>0674</u>	<u>—</u>	<u>9-24</u>	<u>11:12</u>	<u>-30</u>		<u>9-24</u>	<u>11:13</u>	<u>—</u>		<input checked="" type="checkbox"/>									

Are these samples known to be involved in litigation? If yes, a level IV data package will be generated and a surcharge will apply.

Are these samples known to be hazardous? ☐ Yes ☐ No

Special QC Requirements/Special Instructions/Comments:

TEKLAB ^{No}

Courier

Shipping Company and Tracking Number:			
Relinquished By	Date/Time	Received By	Date/Time
<u>[Signature]</u>	<u>9-24 / 11:30</u>	<u>[Signature]</u>	<u>9/24/16 11:30</u>
<u>[Signature]</u>	<u>9/25/16 11:20</u>	<u>[Signature]</u>	<u>9/28/16 11:20</u>
<u>[Signature]</u>	<u>9/27/16 9:50</u>	<u>[Signature]</u>	<u>9/27/16 9:50</u>

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse, and has the authority to sign on behalf of client.

White Copy - Laboratory Yellow Copy- Sampler

[Signature]

Mr. Bruce Morrison
February 9, 2017

FIELD NOTES

Project No.: 2950R Project Name: Solutia Drawing: of Subject: Sub Slab Sampling By: Robert Andrews Scale: " = ' Date: 9-24-16

		Depth	Water Dam	Time Start	Time Stop
Ahrens Front	SSV-1	13 1/4"	Pass	9:09	9:26
Ahrens Back Room	SSV-2	10.5"	Pass	9:33	9:43
School Vending	SSV-3	6 3/4"	pass	11:12 10:54	11:13
School Sink	SSV-4	6 3/4"	pass	10:57	11:20 07

	Vac Before	Vac After
SSV-1	-31"	-5.5"
SSV-2	-29"	-5"
SSV-3	-30"	N/A
SSV-4	-23"	-5"

SSV-3 did not pull a vacuum, the flow regulator was bent. Removed the regulator and hooked up the sample port to the regulator w/o the gauge. Was not able to determine how much vacuum was in the sam canister when we sampled.

4.5 WS